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Creating and implementing local health and wellbeing policy: networks, interactions and collective knowledge creation amongst public sector managers --Manuscript Draft--

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Abstract:	<p>Background: In the UK managers from multiple organisations are commonly tasked with collectively devising and implementing local health and wellbeing policies as a way of addressing increasing demand for healthcare. This requires them to create knowledge together but relatively little is known about how this occurs. This paper reports the results of research into how managers collectively create knowledge in order to address local health and wellbeing challenges.</p> <p>Methods: We undertook a case study in three sites in England. Using statistical network modelling we identified clusters of actors and interviewed managers from heterogeneous clusters about their collective activities. We used interview and documentary data to construct accounts of collective knowledge creation.</p> <p>Findings: Managers simultaneously work across stable bureaucratic networks and temporary taskforces in order to create and implement local health and wellbeing policy. They collectively create knowledge by enacting networks of relationships which enable them to share and build on routines and discourses and to reach out for new evidence, perspectives and skills. When creating knowledge, managers' ability to draw on and harmonize alternative programmes of action and their willingness to collectively negotiate is more important than their managerial status or position.</p> <p>Conclusions: Managers should be encouraged to examine and discuss their alternative programmes of action and to see these as a catalyst for rather than barrier to collectively creating and implementing local health and wellbeing policies and should be supported and valued for their ability to harmonize conflicting programmes of action.</p>	
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<p>Please summarise the main messages from the paper in up to four bullet points. The contribution made by the paper to the field should be clear from these key messages. Each bullet point must be less than 100 characters.</p>	<ul style="list-style-type: none">•These networks enable managers to build on pre-existing discourses and reach out for new knowledge•Creating knowledge relies on managers' ability to harmonize conflicting programmes of action•Narrative methods show how networks are enacted to overcome barriers to collective knowledge creation
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Context

Policymaking in the 21st century is increasingly characterised by an emphasis on so-called ‘wicked’ policy problems which transcend any one professional or organisational remit. One such example is in the broadly-constituted area of health and wellbeing which in the UK (and elsewhere) is replete with ‘national ambitions’ and policy solutions aimed at tackling unhealthy behaviour and slowing the rapidly increasing demand for healthcare (Department of Health 2008, Department of Health 2013). These interlinked policies include a high purchase tax and ban on smoking in public places, the use of health promotion messages (e.g. <http://www.change4life.co.uk>) and specific advice and treatment (e.g. weight loss classes, nicotine replacement therapy).

Although national health and wellbeing policies are growing in scope and pace, they are often poorly defined and short on detail, leaving local health and wellbeing practitioners and managers with the task of devising and implementing local policies and solutions. This process, however, comes with a number of practical problems and uncertainties. These include identifying appropriate local objectives and stakeholders, working out which local populations to focus upon and working out the practicalities of coordinating, organising and delivering health and wellbeing interventions across multiple organisations. These are further compounded by a high degree of uncertainty about ‘what works’ to achieve broad policy objectives such as a healthier population (Klijn & Koppenjan 2004). Such uncertainty demands creativity and innovation on the part of those tasked with developing and implementing local health and wellbeing policies (Mantoura et al. 2007), meaning that collective knowledge creation (the process of interacting with others to work out what to do in uncertain situations) is also a key aspect of this landscape.

There is a wealth of literature which focuses on how private sector companies create knowledge (Brown & Duguid 2001, Byosiére & Luethge 2008, Nonaka & Takeuchi 1995) but much of the literature tends to focus on knowledge creation within rather than between organisations and there is limited work on how knowledge is created within the public sector (Hartley & Benington 2006, Rashman et al. 2009). There is, however, a large body of literature which focuses on how public sector managers import, exchange and implement knowledge generated elsewhere either individually

or collectively (Birken et al. 2012, Contandriopoulos et al. 2010, Ferlie et al. 2012). This typically focuses on the use of research-based knowledge and evidence within tightly-bounded situations and does not adequately account for the complex interrelationships between different forms of knowledge within local policymaking (Riley et al. 2012, Mulgan 2005), the ambiguous and pragmatic nature of the process itself (Ramsdal & Hansen 2017) or the multiplicity of divisions between those involved (Smith & Joyce). As a result a number of questions remain about whether and how health and wellbeing (and other public sector) managers collectively create knowledge to address local challenges.

This paper reports the results of research designed to increase our understanding of how public sector managers collectively create knowledge across organisational boundaries. We focus particularly on those managers with a role to play in designing and implementing local health and wellbeing policies, who are typically spread across a range of different public sector organisations including community healthcare organisations and local government organisations. We aimed to answer two key questions: what do the relationships between these managers look like and how do they create knowledge together? We addressed these questions by mapping the relationships between health and wellbeing managers in a local area and constructing descriptive narratives of collective knowledge creation between these managers using interview and observational data. In this paper we primarily focus on the latter (narrative accounts of collective knowledge creation). We begin by outlining the theoretical background to the study before describing our study design and methods. We then present narrative accounts of how health and wellbeing managers collectively create knowledge. These accounts are accompanied by network diagrams illustrating the patterns of relationships between those managers. We conclude by comparing these accounts with theoretical assumptions about knowledge creation and discussing the implications for those who seek to support collective knowledge creation at the interface between policy and practice.

Theoretical background: organisational knowledge creation

Theories about how organisations create knowledge have grown in scope and pace since the mid-1990s with the publication of Nonaka and Takeuchi's *The Knowledge Creating Company* (Nonaka & Takeuchi 1995). They, and the authors who followed them, focused on the way in which knowledge is made available and amplified in order to create solutions to shared problems. Their initial concepts have been drawn on across a broad range of disciplines and settings with these ideas eventually coalescing under the term 'organisational knowledge creation theory' (Nonaka et al. 2006). One of the most striking contributions of this new theoretical perspective was a shift in emphasis from studying how organisations process given or external information and knowledge to studying organisations as embodied ways of knowing. Knowledge, in this landscape, is a process (more than an object or resource) and is embedded and revealed through what people do (social practices) and what they say (narrative practices, reflexive practices) and therefore cannot be separated from people (Nonaka et al. 2006). Knowledge creation involves tapping the tacit, and often highly subjective, insights, informal skills and practices (or 'know-how') of employees in ways that can be acted on.

These broad observations about organisational knowledge creation have led to the establishment of three main areas of enquiry within the field. The first concerns the patterns of relationships within and between groups of people. These are seen as acting as a frame for the social interaction through which knowledge develops and emerging problems are solved (Lindblom & Cohen 1979, Nonaka & Takeuchi 1995) and as a mechanism for the aggregation of knowledge from different network actors (Kooiman 1993). Key debates in this area of enquiry concern the relative importance of heterogeneity, stability and self-organisation within and across networks for knowledge creation (Argote & Miron-Spektor 2011, Rodan & Galunic 2004, Rutten 2004, von Krogh 2009). The second area of enquiry concerns the ways in which individuals and groups of people interact. This stems from the understanding that organisational knowledge creation is embedded in specific locales and social practices and increasingly occurs through temporary and episodic collaboration in projects which involve relatively small groups of people interacting in order to solve a common problem (Cohendet et al. 1999, Grabher 2002, Grabher 2004, Nonaka & Takeuchi 1995). The third area of enquiry

concerns the constraints and enablers to knowledge creation, with these ranging from network stability (Collinson & Wilson 2006) and performance management arrangements (Hartley & Benington 2006) to uncertainty and other socio-cognitive conflict which are understood to stimulate learning and knowledge combination (Alin et al. 2011, Nonaka & Takeuchi 1995).

Whilst networks and interactions are understood to be a key feature of the organisational knowledge creation landscape, most of the literature pursues narrative descriptions of these networks (Lewis et al. 2008). Such work, which uses networks as organising ideas or metaphors for describing and explaining the relationships which enable actors to create knowledge and solve problems, has tended to place less emphasis on using empirical methods for studying relationships (Lewis 2011). One reason for this is that empirical network analysis is often used within an analytically rational framework whereby the configuration of a network is treated as a concrete phenomenon which produces a particular behaviour (Crossley 2012). In contrast, within the organisational knowledge creation literature, social and organizational phenomena are seen as irreducibly complex and networks viewed as a descriptive representation of underlying patterns of relationships which make a certain set of actions possible. In other words, patterns of relationships merely represent the potential routes for knowledge creation and different connections will be enacted according to the particular problem being addressed (Considine & Lewis 2009, Nonaka & Takeuchi 1995).

These insights about organisational knowledge creation provided us with a useful theoretical framework for our study and provided us with an important methodological steer for how to go about studying knowledge creation amongst public sector managers. We outline our approach in the following section.

Methods

Sample and setting

We used a case study design where our phenomenon of interest was how managers collectively created knowledge in order to address local health and wellbeing challenges (Hammersley et al. 2000). The managers in question were those with a role to play in designing and/or implementing

local health and wellbeing policies. We undertook our study in three sites in the North of England, each of which was defined by the geographical area covered by the local government authority. Ethical approval for our study was given by Leeds West NHS research ethics committee.

Recognising that collective knowledge creation occurs where groups of people attempt to solve common problems, we began by identifying the most pressing health and wellbeing priorities being faced by each local area. We identified these via discussions with local Directors of Public Health and 1-2 other senior managers who had a good overview of the priorities across their local area and of the organisations likely to be involved in tackling that priority. These are shown in table 1 below.

[Table 1 here]

Table 1: Priority areas for each study site and the organisations involved

Next, we undertook a series of short ‘network interviews’ to identify managers who were directly involved in creating or implementing policies relevant to the local priority and shed light on their underlying patterns of relationships. We conducted 12 network interviews at each site. We selected the first 4 interviewees from our discussions with senior managers, a further 4 by modelling the patterns of relationships between the actors who they named, and a final 4 by modelling the patterns of relationships between the actors named by the first 8 interviewees. Using the question ‘who do you go to in order to get things done about [the local priority]?’ (which we chose as a way of focusing on joint action) we generated lists of between 58 and 123 actors at each site. We modelled the relationships between these actors using the concepts of latent position network models (Hoff et al. 2002) and latent position cluster models (Handcock et al. 2007), where clusters represent sites of ‘collective action’. In the resulting visual representation (see figure 1 below for an example) individuals are placed close together when they were more likely to be connected and are grouped together when they are common to the same cluster. Individuals placed closer to the centre of each cluster (i.e. in the darker coloured rings) are more likely to have strong connections to each other and the cluster. For a more detailed description of our network modelling and sampling methods please see West et. al., 2015.

Data collection

Having identified the local health and wellbeing priority and the managers involved in tackling it at each site, we adopted narrative process tracing methods to construct accounts which could shed light on how these patterns of relationships were being enacted, the collective action that these clusters of managers were involved in and whether/how they were collectively creating knowledge (George & Bennett 2005). We constructed our accounts from two types of data. Our primary data source was interviews with managers whom we identified as belonging to a single heterogeneous cluster (comprising managers from different organisations, backgrounds and roles) via our modelling methods. We chose heterogeneous clusters to investigate whether these relationships were being enacted for the purpose of knowledge creation across organisational boundaries. Since we were interested in examining how managers were interacting (rather than what happens when people don't have the opportunity to interact), we selected interviewees who were close to the centre and had a high degree of connection within a heterogeneous cluster, and those who connected the cluster to other clusters within the model.

We interviewed between 9 and 11 managers at each study site in the early summer of 2012, approximately 1 month after modelling their relationships. Each interview lasted between 60 and 90 minutes. Interviewees were provided with participant information prior to the interviews and completed a consent form before the interviews commenced. We adopted a realist interview approach (Pawson & Tilley 1997), where our theory about collective knowledge creation was represented in our models of the relationships between groups of managers. We showed each interviewee versions of the diagrams which revealed the names of other managers known to them and asked them to tell us about any collective activities which those actors had recently been involved in.

Our secondary source of data was documents from a range of meetings at each study site (e.g. agendas, minutes). We selected meetings on the basis that they involved heterogeneous groups of actors (including our interviewees), they were related to the priority topic for that study site and they took place on a regular basis. We were unable to directly observe all relevant meetings so meeting documents provided the most consistent data.

Analysis

Our analysis involved using our data to identify and construct coherent narrative accounts of collective knowledge creation. We reasoned that people often employ narrative reasoning and accounting in situations that demand inventiveness and actors need to acquire skills or mobilise ‘helpers’ with relevant skills.

Our starting point was our interview data which we examined using Greimas’s narrative model of transformation (Greimas 1966). The approach is based on the premise that the language we use provides important pointers towards episodes of transformational action (i.e. solving problems or undertaking new activities) and clues about how this is undertaken and accomplished. The approach has previously been used in studies of technology implementation (Groleau & Cooren 1999) and organisational routines (Cooren & Fairhurst 2004). Since organisational knowledge creation theory suggests that collective knowledge creation is closely tied to joint problem solving, we judged that this approach would also enable us to identify episodes of collective knowledge creation. According to Greimas, transformational action involves two key stages and five corresponding speech acts. In the first stage actors are stimulated and enabled to undertake a new task (this stage is narrativised through the speech acts of manipulation, commitment and competence) whilst the second stage focuses on the performance of the task and its evaluation (speech acts: performance, sanction). Greimas also recognized that stories can be told from different perspectives corresponding to the positions, interests and programmes of action of the participating actors or subjects, which makes his model particularly useful for studying inter-organizational knowledge creation.

Three members of the research team were involved in carrying out the analysis, and met regularly to review and refine the analytical procedure. The outputs of each analytical step were also shared and discussed amongst the team. Our analysis consisted of the following steps:

- 1) Using QDA Miner (v2.0), a qualitative data mining and visualisation tool (Lewis & Maas 2007), we performed keyword searches to identify passages of text where our interviewees used phrases which corresponded to Greimas’s speech acts and were likely to point towards episodes of knowledge creation (Cooren 2001, Cooren & Fairhurst 2004). These phrases were “have to/want to”

(which correspond to manipulation and commitment speech acts) and “able to/know how to” (which correspond to competence speech acts) (Greimas 1966).

2) We read and grouped the identified passages within each site according to the object of the activity (e.g. planning a health promotion event). Some activities included data from multiple interviewees.

3) Using the framework function in NVivo 9.2, we summarised the material into narrative fragments (Pentland & Feldman 2007). We followed a series of conventions to ensure consistency between coders and reversibility including retaining phrases such as ‘have to’, ‘want to’ and ‘able to’, indicating the actors involved and capturing expressions of subjectivity (e.g. I, we).

4) We returned to our interview data and meeting documents to identify, code and summarise any additional material which related to each activity. This enabled us to fill out some of the background details necessary to contextualise the activity and to identify data corresponding to performance and sanction speech acts which we were not able to identify using keyword searches.

5) The final stage of our analysis involved reordering the narrative fragments into a tellable sequence of events, because it was sometimes necessary to relax the structural rules based on Greimas’s narrative model in order to create a story that ‘made sense’ and could shed light on whether and how managers were collectively creating knowledge.

Once we had completed our narrative analysis, we compared the narratives with our latent cluster models in order to identify the network position of those who were involved in the narrative accounts. This enabled us to add further descriptive detail about the patterns of relationships between the actors involved in the narrative accounts and to consider the role of organisational and professional divisions in collective knowledge creation.

Results

We were able to identify a total of twenty six accounts of collective knowledge creation across our three study sites. Each account included data from multiple interviewees and included all five speech acts associated with transformational action. This showed that the patterns of relationships between groups of managers were indeed being enacted for the purpose of collective knowledge

creation. Project-based organising was a prominent feature of each account, this being represented by the involvement of a relatively well-defined cast of actors interacting in order to solve a common problem within a ‘project ecology’ of more enduring ties and institutions (Grabher 2004). In line with our theoretical focus on knowledge as a process which is revealed through social and narrative practices, it was these ‘common problems’ which constituted the focus of knowledge creation and the (often tentative) ‘solutions’ which constituted the knowledge which was being created. Table 2 gives an idea of the object of knowledge creation in each account and shows that whilst the majority were accounts of practical time-bound activities, some were accounts of a group of actors’ general approach towards ongoing priorities.

[Table 2 here]

Table 2: Overview of accounts of collective knowledge creation

Below we present three of our accounts of collective knowledge creation (one from each site). These accounts (italicised in Table 2) have been selected on the basis that they were discussed by several interviewees, referred to in meeting documents and illustrate the main analytical and theoretical insights arising from our data set. For brevity we present the accounts in a diagrammatic overview (flow chart) and narrative description which is interwoven with our observations about how these relate to the key aspects of organisational knowledge creation theory outlined earlier (interactions, patterns of relationships and constraints/enablers). Each account is also accompanied by a visual representation of the patterns of relationships at that study site.

Developing a smoking cessation referral system

We begin with an account from study site 1, where the overall priority was reducing the prevalence of smoking. In this account a large cast of actors come together to develop and implement a new policy and system for referring a specific group of people into the local smoking cessation service. The cast of actors involved in collectively creating this knowledge includes Local Government Authority environmental health managers and enforcement staff, NHS smoking cessation

service managers and practitioners, primary care commissioning managers, other members of a local strategic tobacco control alliance and local taxi drivers (as the intended beneficiaries). Figure 1 below shows the patterns of relationships at the study site. To recap, individuals are placed close together when they were more likely to be connected to each other and are grouped together when they are most likely to be playing a role in some kind of collective action. Whilst the majority of actors involved in this account are members of Cluster E, which is both the largest and most heterogeneous grouping of actors, enforcement staff are members of Cluster F, which represents a group of actors holding largely legislative roles.

[Figure 1 here]

Figure 1: patterns of relationships at study site 1

Figure 2 below provides an overview of the account, told from the perspective of the actors involved. This is presented as a flow chart which shows the key narrative fragments in sequence.

[Figure 2 here]

Figure 2 Developing a Smoking Cessation Referral System flow chart

This account started with an imaginative leap, made by one of the managers during a local Tobacco Alliance meeting:

“Mrs J**** has been on a speed awareness course. She’s actually been on a few speed awareness courses, and as you probably know if you get caught speeding up to a certain level, instead of taking your penalty points and getting the fixed penalty notice, you can pay a lower fee and go on a half day awareness course.”

The insight was that a similar scheme could be introduced to educate people about smoking in public places. Legislation enabling Local Government Authorities to issue fixed penalty fines had

recently been introduced and through discussion at a series of Tobacco Alliance meetings a scheme was devised to offer those caught smoking a referral to smoking cessation services for education and advice. As long as the offer was taken up within a certain period of time, the fixed penalty notice would be waived. The group agreed that the scheme would focus, in the first instance, on local taxi drivers, who were deemed to be at high risk of poor health and to pose a risk to their passengers' health through secondary smoke.

Pre-existing relationships and networks (both within and between clusters) appear to be the biggest influence on how these actors collectively created knowledge about reducing the prevalence of smoking. The generation of the initial idea was influenced by actors' familiarity with practice in traffic policing, relationships with enforcement staff, exploratory conversations taking place in and around a regularised Tobacco Alliance group and the inclusion of taxi drivers as a priority target group in the networks of several local public services. The crediting of the idea to the Tobacco Alliance group rather than any one individual also highlights the importance of these relationships and networks.

While there was enthusiasm for the scheme, problems had to be confronted. For example, concerns about data protection caused some headaches since the details of those caught smoking would have to be passed from the Local Government Authority to the NHS smoking cessation service and the details of those who had attended the service would then need to be passed back to the Local Government Authority so the fine could be waived. This problem was resolved through group and 1:1 discussion both within and outside the Tobacco Alliance meetings leading to the invention of a system for logging referrals and attendances without the need to share personal information. Similarly, there was concern about the possible loss of income streams from waiving the fines. Although the loss of income would only be in the order of hundreds of pounds, this led to a lot of internal discussion and negotiation between senior managers and middle managers within the Local Government Authority. Resistance was overcome by reminding senior managers that the less tangible long term cost of smoking was likely to be higher than any immediate lost revenue.

As the knowledge creation activity gained momentum, it became apparent that the changing relationships and networks (i.e. the inclusion of taxi drivers within the network of a health service)

necessitated the creation of further processes and procedures, and that actors did not always find it easy to work together. Difficulties were overcome through learning about the outcomes and processes which were important to different interested parties and working out how to mesh these together (as in the case of the data protection issues) or appeal to those that were less tangible (as in the case of the lost revenue issue). In each case this involved work to align actors' distinct, sometimes conflicting programmes of action, either by negotiation or by mobilising an integrating narrative common to services with a commitment to public health goals (i.e. risky behaviours like smoking acting as time-bombs for public budgets). The connections and relationships between those involved in health promotion and preventative services (including environmental health) and those involved in legislation (enforcement officers) were key to overcoming these potential barriers and issues.

Creating, shaping and meeting a weight loss target

Our second account is from study site 2, where the priority was planning appropriate healthy lifestyle interventions. It also involves a large cast of actors coming together – this time to create and implement a local weight loss target. The cast of actors involved in collectively creating this knowledge includes public health commissioning managers, members of a local strategic partnership (including actors from the Local Government Authority and a range of NHS and community organisations) and weight management service managers and practitioners from public, private and voluntary sector organisations. Figure 3 below shows the patterns of relationships at the study site. Whilst the majority of actors involved in this account are members of Cluster E, which contains a tightly-clustered group of actors from NHS and local authority organisations who are involved in commissioning and providing health and wellbeing services, two of those involved in the account are from cluster G, which includes voluntary and community groups and local government employees involved in providing weight management and physical activity services. Note that the two clusters are particularly well connected.

[Figure 3 here]

Figure 3: Patterns of relationships at study site 2

Figure 4 below provides an overview of the account.

[Figure 4 here]

Figure 4 Creating, Shaping and Meeting a Weight Loss Target flow chart

This account started with the Local Strategic Partnership setting a weight loss target, to be implemented across the locality. It specified that a number of people who were seriously overweight had to lose 5% of their body weight, and maintain their new weight for 12 weeks. Services would receive outcome-based payments for hitting the targets. The target was applicable to organisations running weight loss services across the locality, which at the time included services in both the Local Government Authority and NHS community health services. In order to achieve the target, it was necessary for these services to work together and form reciprocal relationships. This included NHS managers contacting and negotiating with managers from Local Government Authority leisure facilities for free access to help people maintain their weight loss.

In this account a discrete external disturbance (the weight loss target) prompted the knowledge creation activity and encouraged joint problem-solving and coordination across a range of interested parties and organisations. Attempts to achieve the initial target led to the actors identifying and interacting in new ways with those perceived to have a role to play in weight loss services, including those they had not worked with previously.

Despite working hard together to achieve the target, both organisations found that the original target could not be achieved and, since this had big financial implications, it quickly became the only thing that managers and staff talked about, both during meetings and more informally, which damaged morale. The local strategic partnership eventually agreed to change the target, and once it had been changed the organisations were able to meet it. They were partly able to do this through involving a broader range of private and voluntary sector organisations. Much of this was viewed positively, but there were occasional problems caused by differing payment ‘rules’.

“... working with the gyms, Weight Watchers and Slimming World worked really well. The voluntary sector was more difficult because there seemed to be different rules around what payments they would get for their activity ...”

The first set of interactions enabled the actors to collectively deem the initial target ‘unmanageable’ and work out ways of adjusting it. The revised target led to an expansion of the group of actors contributing to the knowledge creation effort and introduced know-how from other sectors (e.g. the private sector). Although relationships with voluntary sector organisations were in evidence, these were more difficult to enact and did not seem to help overcome the barriers to joint working.

The locality-wide target was later dropped and instead service providers were invited to propose targets which then provided the basis for contract negotiation. This introduced a significant element of competition and militated against the more integrated approach that had prevailed previously.

As the account progresses, it becomes clear that the new mode of interaction was too onerous to sustain for long and was seen to have an unfair impact on the voluntary sector. The solution was to retreat from cross-sector knowledge creation and revert to separately managed and monitored service contracts. Whilst the initial aim of encouraging collective knowledge creation through a shared weight loss target succeeded, the work required to sustain this activity across a large network of weight loss services with variable relationships and connections exceeded the perceived benefits.

At study site 2, the key problem narrativized by interviewees was the nature of the activity they were tasked with. The difficulty of harmonising their respective programmes of action was compounded by the lack of an integrating narrative to legitimise the one-size-fits-all target. Narrative analysis revealed that although the target did induce network extension in an effort to mobilise new ‘helpers’, this extension also allowed actors to resist the target as an unworkable rule by enabling them to identify and re-examine their own and others’ programmes of action.

Coordinating neighbourhood health and wellbeing projects

Our final account is from study site 3, where the priority was preventing vascular disease. The account is from the perspective of interviewees based in the same public health team in the Local Government Authority, but involves a large cast of actors who come together to develop and

coordinate a series of local health and wellbeing projects in response to a national policy directive. These include managers from a range of departments across the Local Government Authority, locally elected councillors, members of a joint strategic health and wellbeing commissioning board, data analysts from a primary care organisation and community and voluntary organisations working in deprived local areas. Figure 5 below shows the patterns of relationships at the study site. All actors involved in this account are members of Cluster G, which contains a tightly-clustered group actors from a range of organisations (including general practitioners) all of whom had an identifiable focus or interest in public health and community-based primary prevention services.

[Figure 5 here]

Figure 5: Patterns of relationships at study site 3

Figure 6 below provides an overview of the account.

[Figure 6 here]

Figure 6 Coordinating neighbourhood health and wellbeing projects flow chart

This account begins when money became available for a programme of physical activity projects tied to a national policy imperative around lifestyle change. The local joint strategic commissioning board recognised that this programme needed a ‘home’ and tasked the public health team in the Local Government Authority with implementing the policy at a local level by allocating funding and coordinating the projects. These managers, in turn, drew on the expertise of data analysts from the primary care commissioning organisation to construct profiles for different neighbourhoods in the locality which they could use to decide which neighbourhoods to include in the programme. They reasoned that

“We wanted to base it on evidence, look at the information around physical activity and nutrition, prevalence of heart disease, diabetes, deaths from those conditions, and ... look at which areas seem to appear to be the worst...”

Similarly to the account from study site 2, the knowledge creation activity was also prompted by a discrete external disturbance - the availability of funding and a national policy directive. This came with several pre-determined expectations about how and with whom actors would interact in order to work out how to prioritise and allocate funding along with expectations about accountability structures and timeframes. These led to the public health team using their networks of relationships to enrol data analysts from another organisation to help them with the process of selecting neighbourhoods.

Once their selection was approved and the programme began to develop, managers began to develop new relationships with community groups and organisations in the selected neighbourhoods. They started by inviting representatives of these groups to planning days in order to identify local priorities then issued a call for proposals to groups and organisations which provided physical activity services. At times they used a targeted approach, based on further consultation within the community.

“We were asked to go away and do some further consultation ... about who would be best placed to deliver the physical activity elements ... so we went back into the communities and asked some people who were already doing physical activity ...”

Initial expectations about accountability and timeframes also led to actors choosing to interact with members of the community (via planning days with trusted ‘opinion leaders’) in a relatively controlled way. This subsequently influenced the relationships that they were able to develop since these opinion leaders were responsible for enrolling others in the collective knowledge creation effort by ‘spreading the word’. In effect, the urgency to get projects started constrained the possibilities for developing and enacting a wider network of relationships to support collective knowledge creation.

As the programme developed, managers were able to develop new relationships in the neighbourhoods, and then use a more formal commissioning mechanism (outcomes-based contracts) to ensure that the activities they wanted were delivered. In the end, however, managers recognised that they were powerless to ensure the sustainability of projects beyond the initial funding period.

Standardised forms of interaction (service level agreements) which were designed to enable greater operational control constrained many of the possibilities for enacting relationships for the purpose of collective knowledge creation further down the line. In the end, this led to managers recognising that they were unable to influence whether the results of the collective knowledge creation activities would be retained, although they may have been able to enact other relationships to enter into new knowledge creation activities in other neighbourhoods.

The two key obstacles recounted by our interviewees both relate to coordinating a network of relationships: early in the account there were complaints about a lack of time for exploratory network search, inducing a preference for existing ties and trusted partners, while at the end we heard worries about loss of accreditation (due to the termination of project funding), experienced by public health managers as having to abandon the position of obligatory passage point in the network. Following this narrative trajectory shows how important are resources (of time, money or discursive power) in order to command the loyalty of ‘helpers’ in collective knowledge creation activities.

Discussion

In this section we consider our key insights about how health and wellbeing managers collectively create knowledge and how these compare to current theories about organisational knowledge creation. We also comment on the utility of our narrative method as a means of exploring data about networks of relationships.

First, much of the theorising and empirical work on organisational knowledge creation has focused on the private sector, resulting in scepticism about its relevance to public sector organisations. Questions have been raised about the extent to which knowledge creation is possible against a backdrop of multiple and conflicting accountability regimes, strategic objectives and professional sub-cultures which act as knowledge silos (Hartley & Benington 2006, Rashman et al. 2009). In contrast, the networks of health and wellbeing managers we studied (which comprised actors from multiple organisations and sectors) did appear to create knowledge together. They were able to use their networks of relationships to identify and harmonize (where possible) conflicting programmes of action, enabling them to overcome many of the perceived barriers to knowledge creation. Even when

such harmonization was not possible (as in the weight loss target account), managers were still able to devise ways of collectively achieving their respective programmes of action (i.e. by resisting the unworkable target). Knowledge creation was prompted by the need to address local priorities which were often broad in scope and/or came with little detail about how they were to be met. Again, it was when such details needed to be filled in that we saw inventiveness, which sometimes included extending a network to mobilise new knowledge resources. This supports theoretical claims about the role of uncertainty as a catalyst for and key component of knowledge creation (Amin & Roberts 2008, Bogenrieder 2002, Erden et al. 2008, Macpherson 2005) and suggests that the ambiguity and pragmatism inherent within local policymaking may support rather than constrain organisational knowledge creation (Ramsdal & Hansen 2017).

Second, one of the most prevalent theoretical stances is that organisational knowledge creation typically occurs when relatively small groups of people interact in order to solve a common problem. Projects are understood to provide a space where tacit and explicit knowledge interact and are converted into new knowledge forms (Nonaka & Takeuchi 1995) and for local knowledge to be integrated into common knowledge bases (Cohendet et al. 1999). Whilst managers at all three of our sites did interact in projects, many of these were set against a backdrop of relatively stable networks of relationships. The smoking cessation referral project, for instance, took place in the context of a large and relatively stable 'tobacco alliance' network, whilst the neighbourhood health and wellbeing account involved a bureaucratic network accrediting an internal task force to mobilise and organise a project. Previous work has raised doubts about both the sufficiency of stable networks of relationships for knowledge creation (Araujo 1998, Collinson & Wilson 2006, Rodan & Galunic 2004) and the risks of ephemeral projects for knowledge retention (Grabher 2002). Our observations suggest that managers are able to successfully operate in such a way as to combine elements of stable networks and temporary projects, alternately switching between learning and remembering (Grabher 2004). Specifically, they use institutionalised relationships and resources to share and build on collective programmes of action whilst creating new project-centred relationships to reach out for perspectives and technical skills from other individuals and organisations when needed.

Third, organisational knowledge creation theory places middle managers at the centre of knowledge creation, with Nonaka and Takeuchi describing them as ‘knowledge engineers’ who translate the grand theories of senior managers into the day-to-day realities of frontline practitioners and vice versa (Nonaka & Takeuchi 1995). Although, as with other aspects of knowledge creation theory, questions have been raised about whether managers’ organisational position is more or less important than their ability to create and propagate discourses (Swan & Scarbrough 2005), they are nonetheless seen as the drivers of organisational knowledge creation. In contrast, our accounts suggest that actors’ ability to identify and harmonize alternative programmes of action (by drawing on routines, official discourses, shared vision and targets) was more important than their managerial status or position in their respective organisations. In the smoking cessation referral account, for instance, the local authority’s need to know clients’ details and the health service’s need to respect strict privacy regulations was recognised by frontline staff in both organisations, authorising them to shape the innovation in important ways (by developing a system which did not depend on sharing personal information). This also calls into question observations about the multiplicity of divisions within knowledge creation and mobilisation, specifically those that place those divisions along professional and/or political lines (Smith & Joyce).

Fourth, organisational knowledge creation theory suggests that the interactions between those involved in creating knowledge are frequently characterised by negotiation. Such negotiation is understood to perform two important functions. It spreads the practices in which knowledge is embedded (Brown & Duguid 2001) and can help to overcome professional, organisational, relational or procedural differences between parties (Hartley & Benington 2006, Rashman et al. 2009). The role played by individual managers in the negotiation process is also thought to be particularly important (Nonaka & Takeuchi 1995). Negotiation was a key aspect of our knowledge creation accounts, but this appeared to depend less on individual managers and more on a collective willingness to negotiate. Collective negotiation was a key aspect of the short period in which services were working within the initial weight loss target, for instance, where differences between groups of professionals from different sectors had to be negotiated. In the neighbourhood health and wellbeing account the position of a team, rather than individual managers, appeared to be important for the local knowledge

creation effort. In each case it appeared to be groups of actors who assumed responsibility for synthesising knowledge conversions between individuals, groups and organisations, simultaneously using local strategic priorities to drive on the ground activities and local practices to challenge and adapt strategic priorities. Negotiation therefore appears to be as much about negotiating between strategic priorities and frontline realities as between the interests and perspectives of different groups of actors.

Finally, our narrative method (both as an interview approach and a guide for data analysis) helped elicit how networks of relationships were enacted for collective knowledge creation, particularly when actors encountered barriers in the pursuit of non-routine tasks. Our narratives showed that underlying networks of relationships served to increase the visibility of alternative programmes of action and allowed actors to identify and negotiate the commensurability of these distinct programmes and the viability of their collective mission. They were also used to identify knowledge and other resources which could be drawn upon in pursuit of a collective task, but only if sufficient time was available for network search. Whilst our network approach enabled us to visualise and describe the patterns of relationships between actors, it was our narrative approach which enabled us to understand how these networks were enacted and to open the black box of collective knowledge creation.

Conclusion

In this article we have explored how health and wellbeing managers collectively create knowledge in order to devise and implement local policy solutions. We have demonstrated that they do this by enacting networks of relationships which enable them to share and build on collective routines and official discourses and to harmonize alternative programmes of action. These networks also allow them to reach out for new knowledge, perspectives and skills where necessary, which can enable both inventiveness and resistance to the mission with which actors have been tasked. We have also shown that enacting these networks is not always easy, especially when the need to act reduces the time available to search the network. These insights serve to add to the limited policy-related literature on how networks of relations are enacted for knowledge and knowing. We close by suggesting some

implications for those who seek to support collective knowledge creation at the interface between policy and practice.

First, although there was some evidence of significant differences and conflicting programmes of action between the actors and organisations we studied, these did not always hamper collective knowledge creation. Instead, they provided actors with resources for collective negotiation which strengthened their knowledge creation efforts. The implications are that managers should be encouraged to examine and discuss their alternative programmes of action and to see these as a catalyst for rather than barrier to collectively creating and implementing local health and wellbeing policies.

Second, health and wellbeing managers create knowledge in simultaneously fluid and stable networks of relationships. Temporary taskforces were evident in each of our accounts, but these were often situated in the context of relatively stable networks of relationships (e.g. bureaucracies). To support the creation and implementation of local health and wellbeing policies organisations (individually and collectively) should foster and support both stable bureaucratic networks and temporary taskforces and – crucially – support managers to work simultaneously in both these settings.

Finally, health and wellbeing managers' ability to create knowledge relies less on their power and position than on their individual and collective ability to exploit the power of routines, targets and discourses and to harmonize conflicting programmes of action. Managers should be supported and valued for these activities, particularly when faced with the challenges of creating and implementing local health and wellbeing policies.

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- Alin, P, Taylor, JE, & Smeds, R, 2011, Knowledge Transformation in Project Networks: A Speech Act Level Cross-Boundary Analysis, *Project Management Journal*, 42, 58-75
- Amin, A, & Roberts, J, 2008, Knowing in action: Beyond communities of practice, *Research Policy*, 37, 353-369
- Araujo, L, 1998, Knowing and learning as networking, *Management Learning*, 29, 317-336
- Argote, L, & Miron-Spektor, E, 2011, Organizational Learning: From Experience to Knowledge, *Organization Science*, 22, 1123-1137
- Birken, S, Lee, S-YD, & Weiner, B, 2012, Uncovering middle managers' role in healthcare innovation implementation, *Implementation Science*, 7, 28
- Bogenrieder, I, 2002, Social Architecture as a Prerequisite for Organizational Learning, *Management Learning*, 33, 197-212
- Brown, JS, & Duguid, P, 2001, Knowledge and organization: A social-practice perspective, *Organization Science*, 12, 198-213
- Byosiére, P, & Luethge, DJ, 2008, Knowledge domains and knowledge conversion: an empirical investigation, *Journal of Knowledge Management*, 12, 67-78
- Cohendet, P, Kern, F, Mehmanpazir, B, & Munier, F, 1999, Knowledge coordination, competence creation and integrated networks in globalised firms, *Cambridge Journal of Economics*, 23, 225-241
- Collinson, S, & Wilson, DC, 2006, Inertia in Japanese organizations: Knowledge management routines and failure to innovate, *Organization Studies*, 27, 1359-1387

- Contandriopoulos, D, Lemire, M, Denis, J-L, & Tremblay, E, 2010, Knowledge exchange processes in organizations and policy arenas: a narrative systematic review of the literature, *The Milbank Quarterly*, 88, 444-483
- Cooren, F, 2001, Translation and Articulation in the Organization of Coalitions: The Great Whale River Case, *Communication Theory*, 11, 178-200
- Cooren, F, & Fairhurst, G, 2004, Speech Timing and Spacing: The Phenomenon of Organizational Closure, *Organization*, 11, 793-824
- Department of Health, 2008, *Putting Prevention First, Vascular checks: risk assessment and management*, London: Department of Health
- Department of Health, 2013, *Cardiovascular Disease Outcomes Strategy*, London: Department of Health
- Erden, Z, von Krogh, G, & Nonaka, I, 2008, The quality of group tacit knowledge, *Strategic Information Systems*, 17, 4-18
- Ferlie, E, Crilly, T, Jashapara, A, & Peckham, A, 2012, Knowledge mobilisation in healthcare: A critical review of health sector and generic management literature, *Social Science & Medicine*, 74, 1297-1304
- George, AL, & Bennett, A, 2005, *Case studies and theory development in the social sciences*, Cambridge Mass: MIT Press
- Grabher, G, 2002, Fragile sector, robust practice: project ecologies in new media, *Environment and Planning*, 34, 1911-1926
- Grabher, G, 2004, Learning in projects, remembering in networks? Communalism, sociality, and connectivity in project ecologies, *European Urban and Regional Studies*, 11, 103-123
- Greimas, A-J, 1966, *Sémantique structurale, Recherche de méthode*, Paris: Larousse

- Groleau, C, & Cooren, F, 1999, A Socio-Semiotic Approach to Computerization: Bridging the Gap Between Ethnographers and Systems Analysts, *The Communication Review*, 3, 125-164
- Hammersley, M, Foster, P, & Gomm, R, 2000, Case study and theory, in R. Gomm, M. Hammersley, & P. Foster (eds), *Case study method*, London: Sage, 234-258
- Handcock, MS, Raftery, AE, & Tantrum, JM, 2007, Model-based clustering for social networks, *Journal of the Royal Statistical Society* 170, 301-354
- Hartley, J, & Benington, J, 2006, Copy and paste, or graft and transplant? Knowledge sharing through inter-organizational networks, *Public Money & Management*, 26, 101-108
- Hoff, PD, Raftery, AE & Handcock, MS, 2002, Latent space approaches to social network analysis, *Journal of the American Statistical Association*, 97, 1090-1098
- Klijn, EH, & Koppenjan, JFM, 2004, *Managing uncertainties in networks: A network approach to problem solving and decision-making*, London: Routledge
- Lewis, JM, 2011, The future of network governance research: strength in diversity and synthesis, *Public Administration*, 89, 1221-1234
- Lewis, JM, Baeza, JI & Alexander, D, 2008, Partnerships in primary care in Australia: Network structure, dynamics and sustainability, *Social Science & Medicine*, 67, 280-291
- Lewis, RB, & Maas, SM, 2007, QDA Miner 2.0: Mixed-model qualitative data analysis software, *Field Methods*, 19, 87-108
- Macpherson, A, 2005, Learning how to grow: resolving the crisis of knowing, *Technovation*, 25, 1129-1140
- Mantoura, P, Gendron, S, & Potvin, L, 2007, Participatory research in public health: creating innovative alliances for health, *Health & Place*, 13, 440-451

- Mulgan, G, 2005, Government, knowledge and the business of policy making: the potential and limits of evidence-based policy, *Evidence & Policy*, 1, 215-226
- Nonaka, I, & Takeuchi, H, 1995, *The knowledge-creating company; how Japanese companies create the dynamics of innovation*, Oxford: Oxford University Press
- Nonaka, I, von Krogh, G, & Voelpel, S, 2006, Organizational Knowledge Creation Theory: Evolutionary Paths and Future Advances, *Organization Studies*, 27, 1179-1208
- Pawson, R, & Tilley, N, 1997, *Realistic Evaluation*, London: Sage
- Pentland, BT, & Feldman, M, 2007, Narrative Networks: Patterns of Technology and Organization., *Organization Science*, 18, 781-795
- Ramsdal, H, & Hansen, GV, 2017, The organisation of local mental health services in Norway: evidence, uncertainty and policy, *Evidence & Policy*, 13, 605-622
- Rashman, L, Withers, E, & Hartley, J, 2009, Organizational learning and knowledge in public service organizations: A systematic review of the literature, *International Journal of Management Reviews*, 11, 463-494
- Riley, B, Norman, C, & Best, A, 2012, Knowledge integration in public health: a rapid review using systems thinking, *Evidence & Policy*, 8, 417-431
- Rodan, S, & Galunic, C, 2004, More than network structure: How knowledge heterogeneity influences managerial performance and innovativeness, *Strategic Management Journal*, 25, 541-562
- Rutten, R, 2004, Inter-firm knowledge creation: A re-appreciation of embeddedness from a relational perspective, *European Planning Studies*, 12, 659-673
- Smith, KE, & Joyce, KE, 2012, Capturing complex realities: understanding efforts to achieve evidence-based policy and practice in public health, *Evidence & Policy*, 8, 57-78

Swan, J, & Scarbrough, H, 2005, The politics of networked innovation, *Human Relations*, 58, 913-943

von Krogh, G, 2009, Individualist and collectivist perspectives on knowledge in organizations: Implications for information systems research, *Journal of Strategic Information Systems*, 18, 119-129

West, R, House, AO, Keen, J, & Ward, V, 2015, Using the structure of social networks to map inter-agency relationships in public health services, *Social Science & Medicine*, 145, 107-114

Figure 1

Site 1 GOES TO

3 clusters

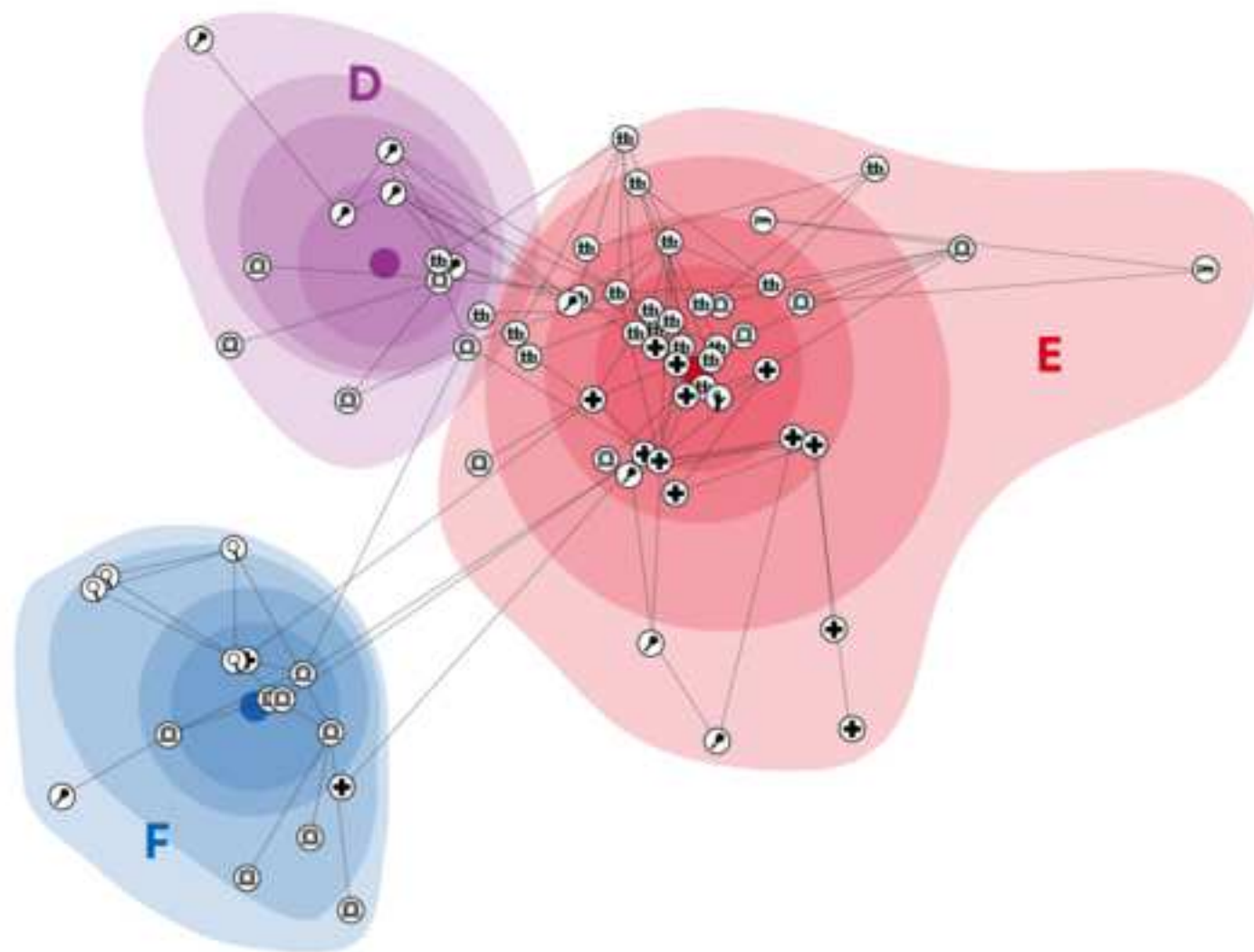


Figure 2

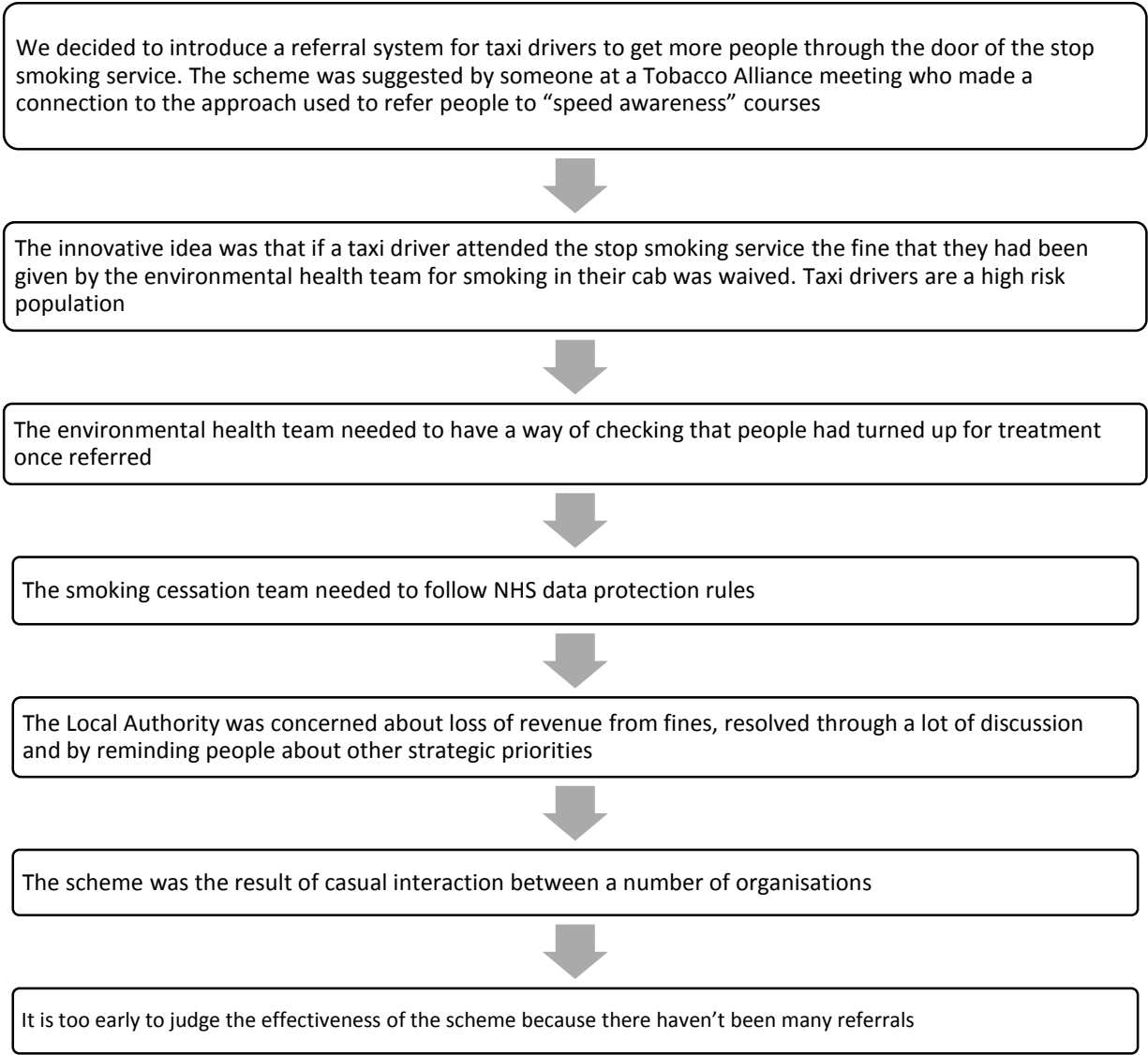


Figure 3 Developing a Smoking Cessation Referral System flow chart

Figure 3

Site 2 GOES TO

4 clusters

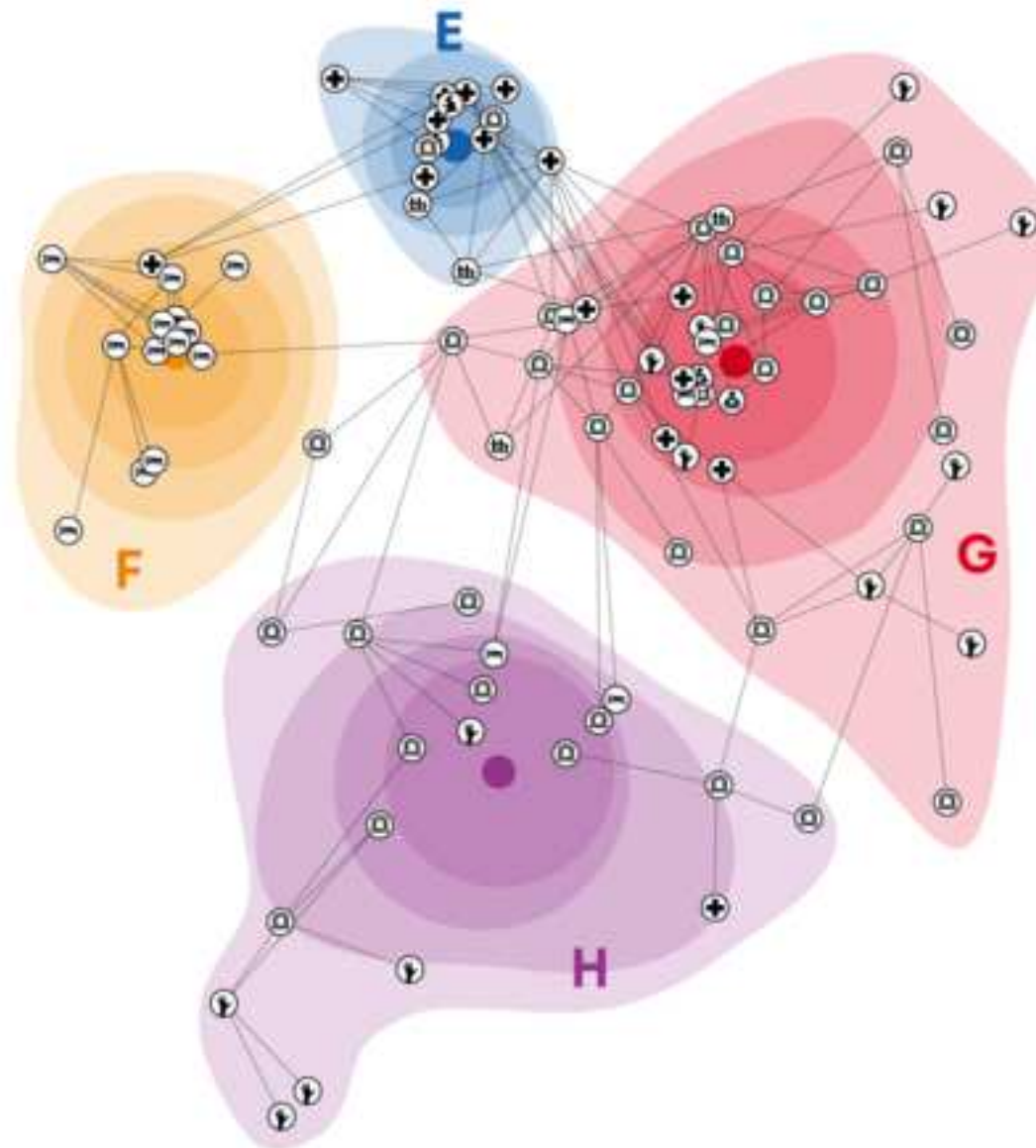


Figure 4

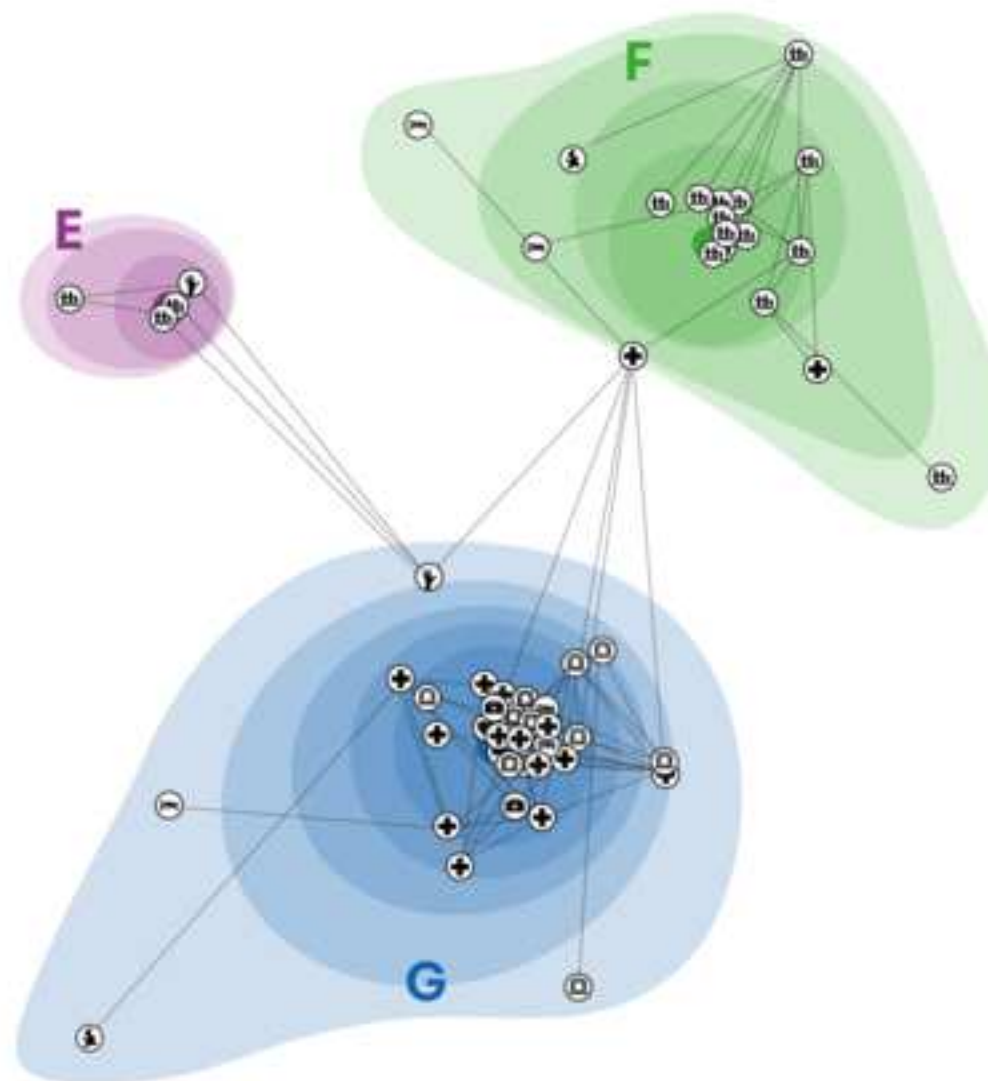


Figure 5 Creating, Shaping and Meeting a Weight Loss Target flow chart

Figure 5

Site 3 GOES TO

3 clusters



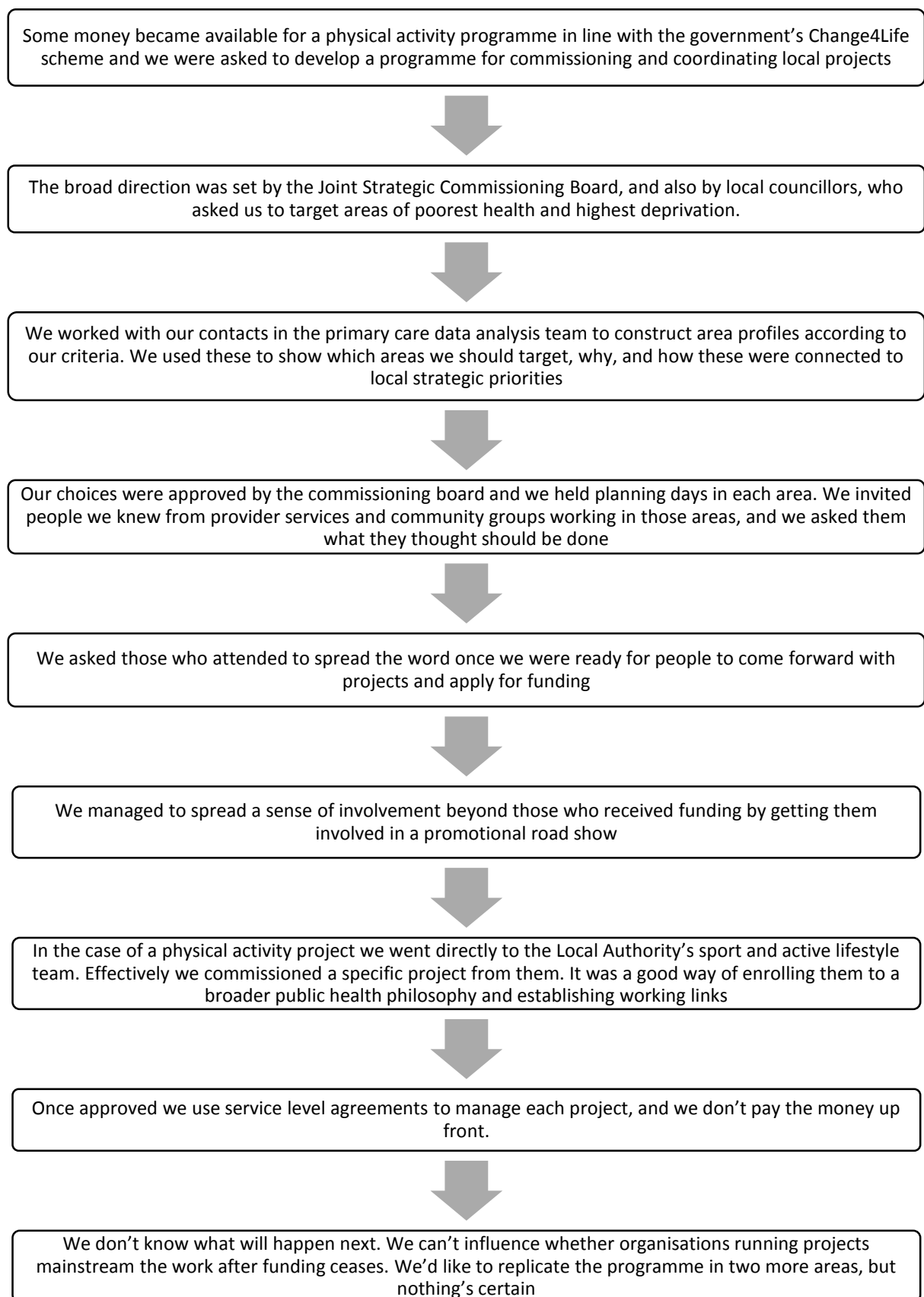


Figure 7 Coordinating neighbourhood health and wellbeing projects flow chart

Study site	Health and wellbeing priority	Organisations involved
1	Reducing the prevalence of smoking	Primary Care Commissioning organisation, Community Health Services organisation, Local Government Authority, Fire Service, Probation Trust, Acute Hospital Trust, Primary Care Medical Practices, Pharmacies, Social Housing Provider
2	Planning appropriate (i.e. community/locality specific) healthy lifestyle interventions	Primary Care Commissioning organisation, Community Health Services organisation, Local Government Authority, Pharmacies, Primary Care Medical Practices, Children's Centres, Acute Hospital Trust, schools, private sector employers
3	Preventing vascular disease	Primary Care Commissioning organisation, Community Health Services organisation, Local Government Authority, Primary Care Medical Practices, private sector employers, local football and rugby clubs, Regional Health Authority, national Department of Health.

Table 1: Priority areas for each study site and the organisations involved

Site 1	Site 2	Site 3
Writing service specifications	<i>Creating, shaping and meeting a weight loss target</i>	Coping with reorganisation
Dealing with targets and performance indicators	Sharing resources	Implementing national guidance/policy/priorities
Planning a health fair/stop smoking day	Coping with reorganisation	Improving the health of council staff
<i>Developing a smoking cessation referral system</i>	Targeting your audience	Developing and implementing a town planning & health project
Coping with NHS cuts and reorganisation	Setting local priorities	<i>Coordinating neighbourhood health and wellbeing projects</i>
Brokering relationships between people from different services	Developing and implementing a weight management programme for mums-to-be	Targeting your audience
Improving taxi drivers health	Making services sustainable	Assigning tasks to people and roles
Sharing responsibility for the tobacco agenda	Commissioning services	
Knowing your audience	Increasing awareness of 'Smoke free homes'	
Working as street level bureaucrats		

Table 2: Overview of accounts of collective knowledge creation